

Earth's orbital unit,	April 4, 1879,	92579000
Cosmical masses,	“ “	92549000
Neptune's radius vector,	“ “	92717000
Primitive condensation,	Jan. 4, 1880,	92520000
Sun and Jupiter,	“ “	92606000
Nodal action,	March 19, 1880,	92711850
Hydrogen,	April 16, “	92756000
Oxygen,	“ “	92849000
Undulatory <i>vis viva</i> ,	Note 3,	92812000
Earth's mass,	“ 5,	92734000
Terrestrial day,	“ 6,	92714000
Earth's semi-axis major,	“ 9,	92752000
Earth's year,	“ 10,	92767260
Jupiter and Saturn,	“ 11,	92758000
Earth's projection,	“ 13,	92590000
Jupiter's day,	“ 14,	93010000

These combined results indicate a value, for Earth's semi-axis major, of 92737100m. \pm 25700; the probable error being less than $\frac{1}{36}$ of one per cent. This gives, for the velocity of light, 299854 \pm 83 kilometres. In the *American Journal of Science*, for January, 1880, pp. 59-64, D. P. Todd discusses Foucault's, Cornu's and Michelson's experimental estimates of the velocity of light. The following table gives his several values, together with Michelson's final estimate (III), and my own :

Foucault.....	298000 km.
Cornu, I.....	298500 “
“ II.....	299990 “
Michelson, I.....	300100 “
“ II.....	299930 “
“ III.....	299820 “
Todd.....	299920 “
Chase.....	299854 “

Stated Meeting, February 4, 1881.

Present, 9 members.

Vice-President, Mr. ELI K. PRICE, in the Chair.

Letters accepting membership were read from Dr. Chas. Stewart Wurts, 1701 Walnut St., Jan. 24, 1881; Mr. Henry Carvill Lewis, Germantown, Jan. 25, 1881; Capt. E. Y. McCauley, Lima, Delaware Co., Pa., Jan. 26, 1881; Mr. Addison May, West Chester, Pa., Jan. 26, 1881; and Prof. Joseph Lovering, Cambridge, Mass., Jan. 31, 1881.

Letters acknowledging receipt of Diplomas were received from Dr. E. H. Von Baumhauer, Haarlem, Jan 15, 1881; U. G. Armstrong, Newcastle-upon-Tyne, Jan. 13, 1881; and Sir Wm. Thomson, Glasgow University, Jan. 19, 1881.

A photograph of Dr. Benjamin Howard Rand was presented for insertion in the Album.

Letters of acknowledgment were received from the Astronomical Society at Leipsig (106 and List); and the American Statistical Association, 19 Boylston Place, Boston (106).

A letter of envoy was received from the Meteorological Office, London, Jan. 1881.

A request for missing Nos. 88, 105 and after, from the Cambridge Philosophical Society, England, was, on motion, referred to the Secretaries with power to act.

A request for Transactions Part 3, Vol. XV, for the Numismatic and Antiquarian Society of Philadelphia, was referred to the Secretaries with power to act.

A letter from the Société d'Anthropologie de Paris requesting subscriptions to the Paul Broca monument was read.

Donations for the Library were received from the Senckenburg Natural History Society, Frankfurt a. M.; the Zoologischer Anzeiger, Leipsig; Nassau Natural History Union; Academia dei Lincei; Annales des Mines, and Revue Politique, Paris; Société de Geographic Commerciale, Bordeaux; Meteorological Council and Nature, London; Geological Survey of Canada; Institute of Technology, Boston; Museum of Comparative Zoology and Harvard College Library, Cambridge; American Journal of Arts and Sciences, New Haven; Numismatic and Antiquarian Society, College of Pharmacy, Mr. F. T. Freeland and Mr. Henry Phillips, Jr. Philadelphia; Mr. Thos. H. Dudley, Camden; Historical Society of Delaware, Wilmington; the Bureau of Education, Washington; and the Kansas Historical Society.

Dr. Brinton read an obituary notice of Prof. S. S. Halde-
man, a member of the Society.

Prof. J. J. Stevenson communicated a paper entitled "The

Upper Freeport Coal Bed along Laurel Ridge in Preston county of West Virginia." By John J. Stevenson, Professor of Geology in the University of the City of New York.

Mr. Fraley reported by letter that he had received and paid over to the Treasurer the last interest on the Michaux Legacy due Jan. 1, 1881, amounting to \$129.60.

And the meeting was adjourned.

The Upper Freeport Coal Bed along Laurel Ridge in Preston County of West Virginia. By John J. Stevenson, Professor of Geology in the University of the City of New York.

(Read before the American Philosophical Society, February 4, 1881.)

Laurel ridge, the easterly boundary of Ligonier valley in Pennsylvania, enters West Virginia at or very near the north-western corner of Preston county. It is a bold anticlinal, which in Indiana, Westmoreland and Fayette counties of Pennsylvania, as well as in Preston and Barbour counties of West Virginia, exposes the bottom of the Lower Carboniferous, and at some localities brings up the Chemung rocks, while the Conglomerate and the Lower Productive Coal group, the Allegheny series of Lesley, are shown on its sides. The fold is cut transversely by several deep gaps in Pennsylvania, where it shows no longitudinal valleys of considerable extent; but in Preston county of West Virginia it is divided longitudinally by Cheat river, whose gorge is one of the most noteworthy attractions of the Baltimore and Ohio railroad.

A strip, extending nearly twelve miles along the westerly slope of the ridge in Preston county, and divided by the Baltimore and Ohio railroad, was visited by the writer in December of 1880. The *Upper Freeport Coal Bed*, the most important member of the Lower Productive Coal group, presents some features there which may be deserving of note.

The easterly outcrop of that bed is crossed by the railroad at probably two miles eastward from Tunnelton station, and there, on the Graham-Beall estate, an old opening was examined which showed the following section:

- | | |
|----------------------------|--------------|
| 1. Mahoning sandstone..... | not measured |
| 2. Shale..... | 0' 3'' |
| 3. Coal..... | 3' 10'' |
| 4. Clay..... | 0' 2'' |
| 5. Coal..... | 1' 8'' |

But the exposure at the bottom is not complete, for, underlying the measured portion, is some good coal, and still lower is a considerable thickness of impure slaty coal, which is not worth digging. The coal, as far